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Worldwide Report

NUCLEAR DEVELOPMENT AND PROLIFERATION

FBIS

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25 May 1984

WORLDWIDE REPORT
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AUSTRALIA

BRIEFS

RADIOACTIVE WASTE RESEARCH AGREEMENT--Australia and Japan have agreed to cooperate on research into synroc, a material developed in Australia to contain radioactive waste. Announcing the agreement in Canberra, the minister for energy and resources, Senator Walsh, said that as a supplier of uranium Australia must be prepared to contribute to the international issue of nuclear waste management. Senator Walsh said the cooperative research program will involve the Australian Atomic Energy Commission and Japan's Atomic Energy Research Institute. The Australian National University in Canberra where synroc was developed will also participate. A similar agreement to cooperate on synroc research was signed between Australia and Britain last December. [Text] [Melbourne Overseas Service in English 0830 GMT 2 May 84 BK]

CSO: 5100/4367

BRIEFS

NUCLEAR ENERGY 'STATE POLICY'--Shenzhen, April 17 (XINHUA)--Use of advanced nuclear energy is China's state policy, said Vice-Premier Li Peng recently while inspecting preparations for construction of a Guangdong nuclear power station. He described the construction of the station as "China's starting point in the development of its nuclear power industry." "China must develop its own nuclear power industry because practice has proved that nuclear power is both safe and reliable," Li Peng said. Nuclear power should constitute a sizeable proportion of China's power output in the next century, he added. The Guangdong nuclear power station, the first of its kind in China, will be built at Daya Bay, 60 kilometers east of the Shenzhen Special Economic Zone, which is part of Shenzhen City. Overseas funds will be raised for the 1.8-million kilowatt station to be built by the Guangdong Nuclear Power Investment Company and the Hong Kong Nuclear Power Investment Company. The vice-premier called for the completion of the station within 6 to 7 years. [Text] [OW171530 Beijing XINHUA in English 1511 GMT 17 Apr 84]

PRC-U.S. NUCLEAR TALKS--Beijing, April 19 (XINHUA)--China welcomes the new progress in Sino-U.S. talks on an agreement for cooperation in using nuclear energy for peaceful purposes. This was stated by Chinese Vice-Premier Li Peng at a meeting with a U.S. delegation led by Ambassador at Large Richard Kennedy here today. Li Peng told the American guests that China was willing to cooperate with other countries on peaceful utilization of nuclear energy. Cooperation with France was already underway, and talks on an agreement for similar cooperation with the Federal Republic of Germany had made very good progress, Li Peng said. The vice premier said he was informed that talks between China and the U.S. on an agreement for cooperation in peaceful utilization of nuclear energy had achieved considerable advances on the principle of equality and mutual benefit. "We express pleasure and appreciation for this," he added. Sources said that a Chinese delegation led by Jia Weiwen, commissioner of the State Science and Technology Commission, had held talks in Beijing with the visiting U.S. delegation on the said agreement over the past three days. The talks will continue. [Text] [OW190845 Beijing XINHUA in English 0813 GMT 19 Apr 84]

PRC NUCLEAR ACCORD--In Washington, a senior official of the U.S. State Department has said the U.S.-China cooperative agreement concerning the peaceful uses of nuclear energy is an important element involving closer U.S.-China relationship. The official was answering a question asked by Radio Beijing's Washington correspondent on the significance of the agreement. The official said that there has been a lot [of] speculation in the press in the last week or so, focusing almost entirely on the economic opportunities this agreement provides for U.S. companies, but he saw agreement as being much more important than that. The official also expressed appreciation for China's decision to join the International Atomic Energy Agency and China's clarification of its nuclear export and nonproliferation policies. [Text] [OW280556 Beijing in English to North America 0000 GMT 28 Apr 84]

NUCLEAR ENERGY AGREEMENT SIGNED--Bonn, 9 May (XINHUA)--The agreement of cooperation on the peaceful use of nuclear energy between the governments of China and the Federal Republic of Germany was signed here today. Chinese Vice Premier Li Peng and Vice Minister of Nuclear Industry Zhou Ping, and FRG Vice Chancellor and Federal Minister of Foreign Affairs Hans-Dietrich Genscher and Federal Minister of Research Heinz Riesenhuber signed the agreement on behalf of their respective governments. Under the agreement, the two countries will strengthen cooperation in such areas as scientific research on nuclear energy, nuclear technological development, and the safety of nuclear devices and the prevention of radiation. They will also enhance cooperation in the design, building and operation of nuclear power stations and nuclear research installations as well as in other areas of common interest. The nuclear cooperation agreement will be carried out in the form of the exchange of scientific and technical personnel, of provision of advices and other services. [Text] [OW100113 Beijing XINHUA in English 1956 GMT 9 May 84]

CSO: 5100/4126

VIETNAM JOINS ASIAN NUCLEAR POWER RACE

Melbourne THE AGE in English 24 Mar 84 p 7

[Article by Michael Richardson]

[Text]

SINGAPORE, 23 March. — Vietnam today joined the South-East Asian nuclear power race by announcing plans to build N-plants to generate electricity.

The announcement coincided with the news that Indonesia is on the threshold of developing a nuclear power industry and confirmation that the Philippines, heavily dependent on oil imports, is preparing to bring South-East Asia's first commercial nuclear power plant into full operation next year.

Voice of Vietnam announced the country's first research reactor had gone into operation "with the aim of using atomic energy for peaceful purposes".

The move is certain to worry China and some of Vietnam's non-communist neighbors which fear such a development would give Hanoi the ability to build nuclear weapons.

Voice of Vietnam said the reactor would be used to train personnel "for the country's future nuclear power generation program, analysing mineral or biological samples and producing necessary isotopes for medical and agricultural research institutions".

Vietnam's research reactor, which has been built with Soviet assistance, is reported to have a capacity of 500 kilowatts — half of one megawatt.

The reactor, in the central highlands province of Lam Dong, is

believed to be an enlarged version of a US-supplied nuclear research reactor housed in Dalat. That was captured after the fall of the American-backed Government in Saigon in 1975.

The US originally supplied the low-power, 250 kilowatt, Triga Two research reactor to the anti-communist Government of South Vietnam under an "atoms for peace" program. The reactor was formally opened in 1963 and used for scientific research and radio-isotope production.

Shortly before the fall of South Vietnam to the communists the Americans put the reactor out of commission.

Observers believe Hanoi's interest in commercial application of nuclear power stems from chronic electricity shortages and almost total reliance on imported oil — both of which are holding back industrial development.

The Philippines' 620 megawatt plant was designed by the American Westinghouse Corporation and is nearing completion at Moring, on the Bataan Peninsula, north-west of Manila.

Indonesia's new 30 megawatt research reactor, designed by a West German company, Internatom GMBH, is being built at Serpong, 30 kilometres south of Jakarta.

Indonesia, which has abundant supplies of oil, natural gas, coal and probably uranium, already has two small atomic research reactors in the cities of Bandung and Jogjakarta.

The Serpong reactor is scheduled to be completed in 1987 and official spokesmen have said in the past that the Government will wait until then before deciding whether to launch a nuclear power program.

But at a ground-breaking ceremony at Serpong on Tuesday, the director-general of the National Atomic Energy Agency, Dr Jali Ahimsa, was quoted as saying the reactor would constitute the base for development of a nuclear power industry.

Both Indonesia and the Philippines have ratified the Nuclear Non-Proliferation Treaty and agreed to allow all their nuclear facilities to be inspected by the Vienna-based International Atomic Energy Agency.

So has Vietnam. The IAEA was set up in 1959 to promote peaceful use of nuclear energy and prevent its diversion for military purposes.

A spokesman for the IAEA said in Vienna last July that the Soviet Union would supply 3.6 kilograms of 20 per cent enriched uranium to Vietnam under an agreement signed with the agency.

He said nuclear research projects in Vietnam would be under the United Nations Development Program and the program would pay for the uranium.

Under a safeguards agreement signed with Hanoi, the IAEA has the right to check how Vietnam uses nuclear materials.

CSO: 4200/713

CZECHOSLOVAKIA

DEVELOPMENT OF NUCLEAR POWER PLANTS DESCRIBED

Budapest HETI VILLAGGAZDASAG in Hungarian No 15, 14 Apr 84 pp 6-7

[Article by Gabor D. Szucs: "Tightly Controlled Reactors"]

[Text] Recently the Czech Federal Parliament approved a law dealing with the state inspection of the radiation safety of nuclear power plants. This step of the legislation is made especially important by the rapid development of nuclear power plants in the country, and, according to plans, in less five years these will supply almost one third of electric power.

During the spring session of the Czechoslovak Federal Parliament, a law was passed dealing with the state inspection of nuclear plants. The law provides the legal conditions and contains requirements for nuclear plants to ensure the safety and health of employees and safeguard public and environmental interests. As the highest organ, the national nuclear energy committee was given the task inspecting the manufacturing and operation of nuclear power plants, since this body is independent of the manufacturers and users of the power plants. The law makes the president of the committee personally accountable. Above all, the safety regulations make mandatory the use of equipment and systems which can localize and reduce the consequences of possible operational breakdowns.

The timing of the regulation of nuclear power plant installation and their operation is understandable, since their construction is proceeding at a fast pace.

In Jaslovske Bohunice, the 440 megawatt blocks of the first Czechoslovakian nuclear power plant have been in operation since 1981. At this location, there are two similar capacity blocks close to completion and expected to be put in use this year. Also this year, the first block of the 4440 megawatt power station currently under construction in Brno, southern Moravia, should be placed in operation. There are two other nuclear power stations under construction in Czechoslovakia. One of them is being built in Mochovce, near Leva, also with 4400 megawatt power capacity and to become operational between 1987 and 1990. The Temelin nuclear power station in southern Bohemia is more powerful already: it will have a 4 1000 megawatt capacity and its last block is to be put in operation by 1995. If all goes according to plans, by 1985, 16.5 percent of the electricity in Czechoslovakia will be supplied by nuclear power plants, 32.9 percent by 1990 and 56.9 percent by the year 2000.

Connected with safety measures is the exchange of ratification documents of the 1982 international agreement during the Prague visit of Erwin Lanc, foreign minister of Austria, which deal with the settling of problems related to the operation of nuclear facilities by the two countries. Among other things, the agreement requires the two countries to inform one another about nuclear power development plans and provides for mutual assistance to cope with the consequences of accidents in nuclear facilities. The agreement becomes effective at the beginning of June and its significance is underlined by the location of the power station under construction in Dukovany, less than 30 kilometers from the Austrian border and that of Temelin, less than 80 kilometers. The Austrian nuclear power plant in Zwentendorf, which has not been placed in operation since its completion five years ago, is also within 50 to 60 kilometers of the Czechoslovakian border.

1984 Investments

Energy development based on domestic resources is at a fast pace in Czechoslovakia. Nearly 40 percent of the budget dedicated to industrial development is for the increase of fuel and power generation. This year, they will spend on this about 2.5 billion crowns over what was estimated in the five year plan. The construction and equipment costs of nuclear power plants are on the increase, and the most important conventional fuel, coal, is more expensive to mine since production is taking place under increasingly unfavorable conditions. For example, in the Slany coal deposit, near Prague, the production of one ton of coal will cost one and a half times more than in the nearly exhausted Kladno mines. Costs are increased by environmental protection expenditures, too.

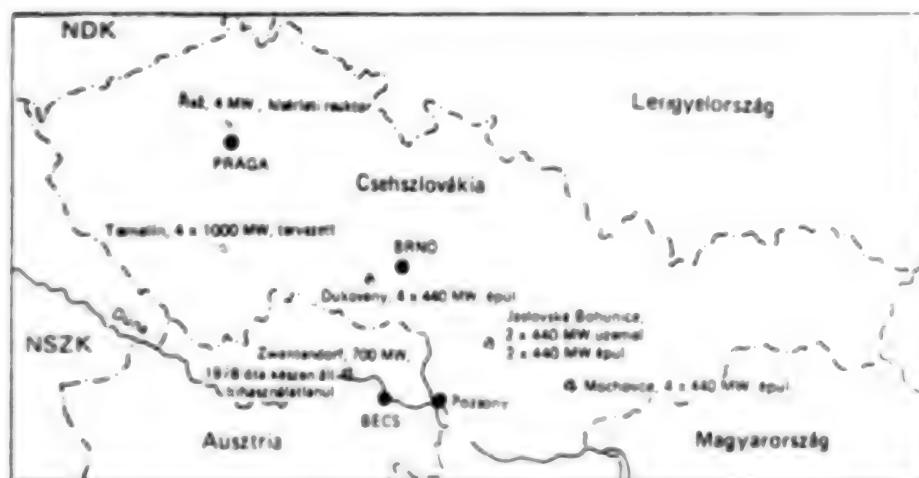
As far as the general state of investment is concerned, last year, 2.7 percent of the GNP resulted in an equal increase of investments. This year's plan estimates a 5.8 percent increase, corresponding to a 3 percent increase of the GNP. In Czechoslovakia, in the past years, about 30 percent of the GNP has been used for the accumulation of assets. As indicated by many responsible managers, the improvement in investment effectiveness produced only moderate results until now.

According to the 1984 plan, the value of investments is to increase from 141.8 billion to 150 billion. As part of this, construction outlays are to increase by 8 percent, the machine and equipment budget by 2.4 percent. The value of construction work exceeded machine investments by 16.8 billion crowns. Last year 12 out of 91 large-scale state investments to be delivered were not completed on schedule, and some of those placed in operation did not meet the planned technical and economical characteristics. A series of unfinished investments did not decrease last year either: 166 billion crowns were tied up, i.e., much more than the yearly investment budget.

Since three years ago, since the modification of economic regulators, enterprises can more extensively participate in the financing of investments. Over the past few years, on an average, 60 percent of the investments was covered from company funds, one quarter from bank credit and 12 to 14 percent from the budget. During this time, the economic units still did not learn how to smoothly

manage their funds. In many cases, it is not discovered until the construction phase that the exact design of the facility is not yet known or that financial resources were overestimated. The result is missed deadlines, cost overruns and lower returns--the Czechoslovakian experts point out.

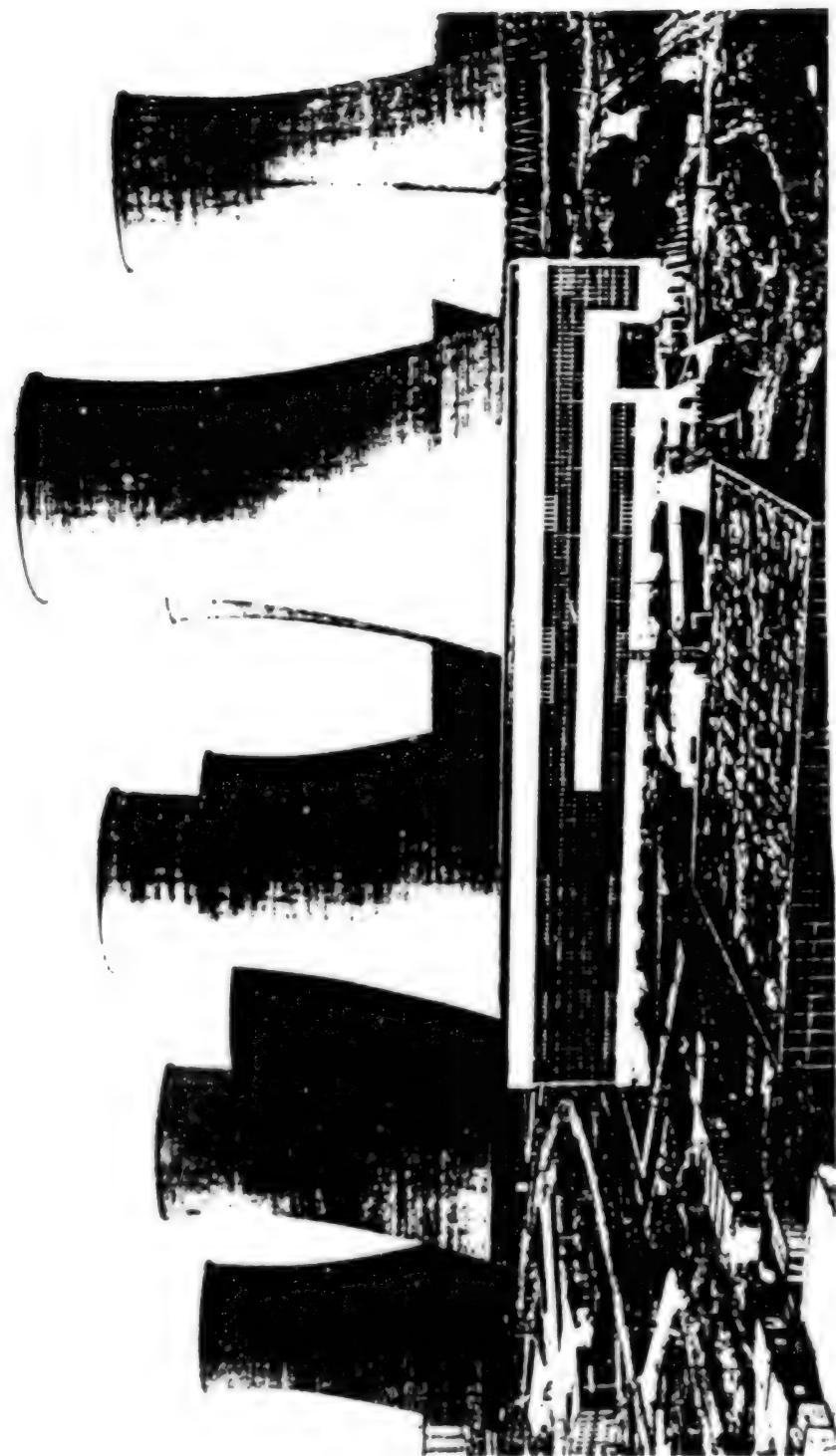
Last year, during a special session, the Central Committee of the Czechoslovakian Communist Party (CSKP) discussed the more effective application of technical and scientific achievements in production. They determined that the lack of competitiveness has a two-fold effect on investments, especially on technological developmental funds. On one hand, the resulting decline in export to capitalistic countries limits the imports as well, and the largest part of advanced technology can only be acquired from that source. On the other hand, production tools, machines and equipment that cannot be sold in developed capitalistic countries will end up on the domestic market. Thus, it is more difficult to reduce outlays and improve their effectiveness.



Nuclear Power Plants in Czechoslovakia and Austria

Key:

1. GDR	8. Prague
2. FRG	9. Experimental reactor
3. Austria	10. Planned
4. Vienna	11. Completed in 1978
5. Hungary	12. Unused
6. Poland	13. Under construction
7. Czechoslovakia	14. In operation



Cooling towers of the Czechoslovak Nuclear Power Plant in Apatszentmiklos.
By the turn of the century, more than half of their electricity will be
derived from nuclear energy.

9901
CSO: 5100/3016

INTER-AMERICAN AFFAIRS

BRIEFS

CHILE, GUATEMALA SIGN AGREEMENT--The governments of Chile and Guatemala, in a ceremony which took place yesterday in the Red Room of the Foreign Ministry, signed an agreement to cooperate in peaceful uses of nuclear energy. The vice-minister of foreign relations, Lt Gen Sergio Covarrubias Sanhuesa, signed the accord as the representative of Chile. Guatemala was represented by that nation's director of nuclear energy, Eduardo Pineda. With the signing, both governments initiated a system to cooperate in the peaceful uses of nuclear energy through joint research, the production of radioisotopes and radio-pharmaceuticals, radiological protection, the industrial application of nuclear energy, and the exchange of experts. The accord will last for 5 years, can be extended, and is in addition to previous agreements Chile has signed with Argentina, Spain, Uruguay, Colombia, and Paraguay, among other nations. During the ceremony, the vice foreign minister stated that the signing demonstrates the vitality of Chilean-Guatemalan relations, adding that it fits into the auspicious and comprehensive framework established by the scientific and technical cooperation agreement signed in 1979. The Guatemalan representative, Eduardo Pineda, pointed out the happy coincidence that this event will take place during the 20th anniversary year of the Chilean Energy Commission. [Text] [Santiago LA NACION in Spanish 20 Apr 84 p 5]

CSO: 5100/2101

NUCLEAR PLAN FUNDS WITHHELD, REPORTS CASTRO MADERO

Buenos Aires LA PRENSA in Spanish 14 Apr 84 p 5

[Text] "The Argentine nuclear plan has been detained, because the Secretariat of Finance is not issuing funds," claimed the former chairman of the National Commission for Atomic Energy [CNEA] and current presidential adviser on the subject, Vice Adm (ret) Carlos Castro Madero, during a talk which he held with a group of congressional reporters upon reaching the bloc of Justicialist deputies, where an exhibit on our country's nuclear program was being given.

After informing the legislators on his experience in the field, and on the nuclear projects and plants that have been built in Argentina and the goals being sought thereby, Admiral Castro Madero answered questions from the Justicialist deputies, whom he assured that, "For the already reduced budget submitted by CNEA, a cut of 6 billion pesos was demanded; and that (he claimed) would have virtually meant its collapse. Therefore, the agency proposed to the Secretariat of Finance a cut of 4.2 billion pesos, which I think has been accepted; in other words, it will be the amount proposed by the Executive Branch."

He added that, in any event, that budget "is very small, and contains very sizable reductions for Atucha II and the heavy water industrial plant, which are projects that can by no means be allowed to stop; first, because of the socioeconomic impact that would occur, and second because leaving 'projects stopped' would mean the cancellation of the respective contracts."

In response to a question from a legislator as to what his position would be if this government's nuclear plan would affect the national sovereignty, he replied: "I would resign...I could not continue."

Prior Incident

The day before yesterday, the visit by retired Vice Admiral Castro Madera caused an incident between the second vice president of the Justicialist bloc, Adam Pedrini, and the presidency of that group, held by Diego Ibanez.

The incident occurred when the Chaco legislator announced that the former chairman of CNEA visited his office to discuss the cuts to be applied to the budget earmarked for the sector's development, and a group of his bloc colleagues informed him of the displeasure that this decision had caused them.

In this connection, Deputy Norberto Imbelloni (Buenos Aires) said, after having talked with Pedrini, who contacted him as spokesman for the presidency, that he lacked the authority to tender such an invitation, and that he was "not the one to go over the heads of the authorities in the bloc, and on the industry, science and technology, and energy commissions." Imbelloni also claimed: "We deputies associated with the Papel Prensa [newsprint] issue have no rapprochement with Pedrini"; and maintained that this new incident would be taken to the members of the Justicialist National Council, "along with other documents containing his (Pedrini's) signature."

The chairmen of the industry, science and technology, and energy commissions, Justicialist National Deputies Alberto Melon, Mario Gurioli and Julio C. Araoz, respectively, also commented unfavorably on Pedrini's position, claiming that the bloc had requested the visit by the aforementioned retired superior naval officer so that he might inform them on "the cuts in the budget for the area."

Relationship With the Foreign Debt

Deputy Gurioli, for his part, stated that an attempt has been made to include the restrictions on the use of nuclear energy in the discussion of the renegotiation of the foreign debt, and maintained: "There are major international interests seeking to prevent our technological progress in that field."

Deputy Araoz, in turn, announced that he would travel to the United States on 21 April to explain the Justicialist position on the issue to Argentina's creditors, and disclosed that, during recent meetings with representatives of the international banks at Punta del Este, he had detected two views, both opposing our country's continued advancement in the use of, and research in nuclear energy.

2909
CSO: 5100/2094

LEGISLATOR, CASTRO MADERO AT VARIANCE ON NUCLEAR PRIORITIES

Buenos Aires LA PRENSA in Spanish 17 Apr 84 p 8

[Text] The chairman of the Chamber of Deputies' energy commission, Guillermo Tello Rosas, and the presidential adviser on atomic energy affairs, Vice Adm (ret) Carlos Castro Madero, held a harsh exchange of views regarding the priority that the nuclear plan should have in the allocation of national budget funds.

In a telephone dialog released by Radio Continental, the former chairman of the National Commission for Atomic Energy [CNEA] cited emphatically the need for the Argentine nuclear plan to have "high priority" in the appropriation of funds.

Meager Funds

The Radical deputy, Tello Rosas, in turn, confirmed the goals of that plan, but explained; "We shall distribute the meager funds that we have among all the problems with which we have to deal": stressing the serious socioeconomic crisis besetting the social sectors with lower incomes.

Tello Rosas claimed that the government would not sign the Nuclear Nonproliferation Treaty (NPT) so long as Castro Madero admitted that the construction on the Alucha II nuclear powerplant and the Arroyito plant "is already 24 months behind schedule."

The discussion took place at a time when press accounts were noting that the government had reduced the CNEA budget, which would cause a delay in the timetable for the construction of new nuclear electric plants.

Balance

Castro Madero remarked that balance between the need that exists to cut public spending and to continue with the nuclear plan "would be achieved if the program were given the necessary economic means with which to prevent its stoppage."

Then the legislator interrupted him, to emphasize that the government is maintaining "the goal of building the (planned) nuclear powerplants that the nation's energy equation will require by the year 2000."

Tello Rosas objected, explaining that he was not referring to Castro Madero, but rather to certain Peronist deputies who "are trying to use the financing deficit that we have to claim that the Radical government will scrap Argentina's opportunities for technological development."

Ratification

He immediately stressed that, "The Radical government is ratifying the nuclear plan"; claiming that, "The extension of the timetable for the work on the nuclear powerplants has not altered or changed the sector's importance."

Castro Madero emphasized the awareness that exists among both Radicals and Peronists of the importance of nuclear development, stating: "There are antinuclear movements in the country opposed to the nuclear plan; which has evoked my concern."

Tello Rosas retorted that, at the meeting on 3 April held by the energy commission with the present head of CNEA, Alberto Costantini, "All of us blocs agreed on the need for carrying the nuclear plan forward."

Castro Madero replied, explaining that he was not criticizing the Radicals, but rather that his concern consisted of the conviction that "the state's meager funds should be properly allocated, based on priorities, and I am criticizing the fact that the nuclear plan is not being given the priority that it actually has."

Positions

The deputy took the floor again to comment that some of the Peronist legislators on the commission that he chairs agree on the need to curb public spending, at the entity's private meetings, but later "they make public statements of a different type."

Then Castro Madero explained that the meeting which he held last week with Peronist legislators "should not be interpreted as a party affair"; claiming that, "amid the financial difficulties that exist, funds for the nuclear plan should not be limited too much."

Espionage

In response to that assertion, Tello Rosas interrupted Castro Madero to say: "We want independent nuclear development, and we remain as steadfast as we were before in rejecting the Nuclear Nonproliferation Treaty, whereby the industrial espionage of the signing countries is infiltrated."

Finally, the deputy explained that Argentina's nuclear superiority in Latin America "imposes on us the obligation not only of providing safeguards, equanimity and security to our neighbors and the rest of the world, but also of offering assurance to the people that we shall do things properly."

2909

CSO: 5100/2094

BRIEFS

NUCLEAR PLANT LAYOFFS--The Justicialist national deputy and vice chairman of the chamber's science and technology commission, Mario Gurioli, disclosed that, during the past few days, there have been 260 layoffs in the Atucha II and the heavy water contractor companies, noting that this confirms "the political pressure being brought to bear on our country, so that it will stop its nuclear plan." According to Gurioli, the layoffs were announced by the Construction Workers Union (UOCRA), and "justified by the Astra Evangelista firm, whose board members claimed that they could not collect the work certificates up to 31 January 1984 from the National Commission for Atomic Energy [CNEA]." The deputy added: "This is true, and it occurred because the government has not issued the necessary funds to CNEA to continue the projects, the stoppage of which, in nearly all instances, will cause the almost complete loss of the construction and facilities that have already been completed." Then he remarked: "The major monopolistic interests do not want Argentina to master the technology of the 21st century, nor to export medium-power experimental nuclear power plants to the Latin American countries; and, finally, they do not want us to help our brothers in the Third World to develop their own nuclear technology." [Text] [Buenos Aires LA NACION in Spanish 21 Apr 84 p 10] 2909

CSO: 5100/2094

URANIUM OPERATIONS AT POCOS DE CALDAS MINING COMPLEX VIEWED

Brasilia CORREIO BRAZILIENSE in Portuguese 27 Mar 84 p 5

[Text] Thirty kilometers from the Pocos de Caldas hydromineral area lies the Pocos de Caldas Plateau Mining-Industrial Complex (CPIC), a pioneer NUCLEBRAS [Brazilian Nuclear Corporations, Inc] project and the first to produce uranium concentrate, the substance called "yellow cake" because of its bright yellow color. After leaving the complex, the uranium is enriched and, now in tablet form, will serve as fuel to supply nuclear reactors.

The Pocos de Caldas Plateau Mining-Industrial Complex is already in full operation, exploiting a uranium reserve totaling 26,800 tons, 21,800 of it at the Osamu Itsumi mine and 5,000 at the Agostinho deposit. In order to gain some idea of the importance of this undertaking and all of the potential it involves, we might note that the Brazilian reserves of this ore, plus plutonium, come to 35 times the resources of petroleum, gas, shale oil, anthracite and charcoal combined.

Thus Brazil possesses the fifth largest uranium reserves in the world, 266,300 tons in the large uranium-bearing provinces, for example at Itataia, in Ceara (142,500) and Lagoa Real in Bahia (93,000 tons), and it is also the only country in Latin America with an industrial plant for the continuous production of uranium concentrate.

Open-pit mining is done at Osamu Itsumi. The total pit from which 55 million cubic meters of ore and burden extracted occupies a space equivalent to a circle with a diameter of 800 meters and will reach a maximal depth of 300 meters. Ore extraction at the deposit is done by direct excavation with motoscrapers or caterpillar tractors. The mine in the municipality of Caldas has reserves distributed in three distinct bodies known as mining bodies A, B and E. Uranium concentrations can be found at a depth beginning 40 meters below the surface, and even up to a depth of 300 meters.

Geologically, the Pocos de Caldas Plateau was created by a volcanic structure. Following the collapse of the central portion, a great depression surrounded by a ring of mountains was formed. The distance around the circle is about 32 kilometers and the area is 800 square kilometers, 1,400 meters above sea level.

The Plant

The plant which produces uranium concentrate adjacent to the Osamu Utsumi mine has a nominal capacity of 500 tons per year, and in December of 1981 it was the site of the first industrial production in Brazil of uranium concentrate, or "yellow cake," in the form of ammonium diuranate. In the first phase of operation, the plant produces, as a secondary product, molybdenum concentrate, in the form of calcium molybdate. In a later phase, toward the middle of this year, zirconium will be produced in oxide form. The main use of molybdenum is in the production of special steels.

The uranium production process begins with primary crushing and separate storage for later processing in a leaching plant into piles. After secondary crushing, with the addition of pyrolusite, tertiary crushing and grinding, the finely milled ore pulp is obtained. It is pumped by means of an ore pipeline to the units for the hydrometallurgical extraction of uranium and molybdenum.

The chemical extraction of uranium and molybdenum includes acid leaching, solid-liquid separation, filtration, clarification and oxidation of the crushed lixiviate with a solvent, separate reextraction of uranium and molybdenum, and precipitation of their concentrates.

Control

The Pocos de Caldas complex also has strict environmental controls, such that the liquid and solid effluents are treated with limestone and lime. They emerge into the refuse basin only after processing with barium chloride to remove the radium 226.

The radium safety and environmental control programs were drafted in accordance with international norms, and those adopted in Brazil by the supervisory body--the National Commission for Nuclear Energy (CNEN)--were developed by the CIPC with a view to ensuring the safety of the employees, environmental protection, and by extension, the safeguarding of the municipalities in the region. Environmental control covers a radius of 20 kilometers from the complex and involves the collection of soil, water, air, plant and food product samples, physical-chemical analyses and the recording of the results and submission of them to the federal and state control bodies.

Fuel Cycle

From the deposit to the nuclear reactor, uranium travels a long path, better known as the "nuclear fuel cycle." The first two phases of the cycle cover the prospecting for and study of the uranium ore. Natural uranium is made up of isotope 238 to the extent of 99.3 percent, with only 0.7 percent of the isotope 235, which is fissionable. Thus in order to be used as a fuel element in a reactor of the type which needs lightly enriched uranium, the ore must achieve a higher percentage of the isotope 235, about 3 percent. And it is precisely through enrichment that this result is obtained.

After uranium concentrate or "yellow cake" is obtained, it is associated with fluorine to create UF-6. Its processing into uranium hexafluoride (chemical compound) is what is called conversion. Once enriched, it can be used for the manufacture of nuclear fuel which, in the form of tablets, will feed nuclear reactors. In the municipality of Resende in Rio de Janeiro, there is an industrial complex made up of three units: a conversion plant, which transforms the concentrate into uranium hexafluoride, an enrichment plant, and a fuel element factory.

Deposits

The largest uranium deposit in the country is located in Itataia in the state of Ceara. It is assessed at 142,500 tons, and is one of the largest in the world. NUCLEBRAS has selected 12 areas for detailed studies, and this one constitutes a region of enormous mineral potential in terms of uranium. The uranium in Itataia is associated with phosphate, in a rock called collophanite. As it is a deposit with characteristics unique in the world, the definition of a uranium extraction process on a world scale is still required. In any case, the technology acquired through the Pocos de Caldas Plateau Mining-Industrial Complex will be broadly used. The Itataia deposit is located on the estate of the same name in the municipality of Santa Quiteria, in the central region of Ceara. It is 45 kilometers from the municipal seat and 15 kilometers from the city of Itatira.

The second largest uranium reserve in Brazil is located in the Lagoa Real uranium-bearing province in the central southern portion of the state of Bahia. It covers an area of 1,200 square kilometers about 40 kilometers to the north of the city of Caetite. It is estimated to contain 93,190 tons of reserves.

The ore in Lagoa Real has characteristics making it comparable to the best in the world in terms of economic use. The processing method is technically easy and involves a low consumption of sulfuric acid per ton of uranium, making the undertaking advantageous. Mining studies have indicated a potential for initial exploitation mainly in open pits. Substantial parts of the deposit, however, will require underground mining.

Valuable Experience

The technology acquired at the uranium processing plant in Pocos de Caldas, as the superintendent of the CIPC, Jose Milton, stresses, will make it possible for the country to plan, establish and operate other undertakings of this sort, without foreign aid, such as the exploitation of our largest reserve, the Itataia deposit in Ceara.

He said that the enrichment of uranium in Brazil is a pioneer activity, above all in technological terms. "This means that in addition to producing "yellow cake," Pocos de Caldas provides a school, a training source for our industry, in terms of developing our autonomy in this sector. And he adds that the country is already in a position to export this technology.

Future Prospects

The exploitation of uranium in terms of energy, according to the superintendent of the CIPC, will in the future be to the developed world what oil is today. "It is clear that this oil will have to be used for nobler purposes, and the known alternative today is nuclear energy," he says.

Another aspect stressed by the superintendent of the Pocos de Caldas complex has to do with environmental protection. Jose Milton reports that the environmental protection program was established 2 years before the complex began operation, covering a radius of 20 kilometers around the project.

"We are studying all ecological conditions, analyzing the air, water, soil, plants and even animals. In other words, every form of life, so that with the continuation of these analyses, we would be able to detect any change which might occur as a function of the operation of the complex. There are stations for the measurement of all these data around our installations. The samples are continually being collected, and this is scheduled to continue until our industrial activities end, which is likely to be 10 or 12 years from now, on the basis of the useful life of the program," Jose Milton stated in conclusion.

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CSO: 5100/208

CONSTRUCTION OF URANIUM ENRICHMENT PLANT IN CEARA SCORED

Scientists, Experts Critical

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 18 Apr 84 p 24

[Report by Jose Roberto Arruda]

[Text] Rio--Minister Cesar Cals' idea to build a uranium enrichment plant in Ceara where a uranium ore deposit was discovered 5 years ago has been roundly condemned by nuclear sector scientists and experts as another folly and this time linked to the petty political-electoral interest of a former army colonel now garbed as a backwoods colonel.

The announcement said that initially \$16 million will be invested in the construction of the pilot-plant and in 18 months the actual plant will be built at a total cost of \$300 million. As always with communiquees of the nuclear sector, it is difficult to verify the terms employed; it is not known if this is a beneficiation plant on the pattern of the one in Pocos de Caldas or an enrichment plant, such as the one the government plans to build in Resende one day.

What nuclear sector experts and scientists cannot understand is the reasons for this action at a time when we have such a large foreign debt and are painfully negotiating from day to day with the IMF." The Brazilian nuclear program has already spent more than \$4 billion (1983 figures) and is budgeted for all the installations involved in the fuel cycle at \$40 billion, to be spent by 1990, a war effort that few nations can carry out unless they want to go bankrupt.

As one scientist said, "we do not have our Falklands but, to compensate, we have our Cals; and we are trying to understand the reasons that led our minister of mines and energy to initiate the construction of the plant in Itataia, a municipality located in an inhospitable region in the interior of Ceara, 200 kilometers from Fortaleza. We do not need uranium now; neither in the form of yellow-cake, which is a primary beneficiation that does not permit its use in nuclear power plants, nor as enriched uranium, because our plants are far behind schedule and we have sufficient fuel for Angra-I for a long time. The latter, incidentally, has not yet passed the licensing tests and continues to be turned on and off like a firefly."

The scientists argue that if the Itataia plant is for simple beneficiation to export yellow-cake, it does not make sense because the world market for that mineral is quite fully supplied and the prices are dropping because of the curtailment of the nuclear industry all over the world. Perhaps that is the last attempt to make the nuclear program viable, obtaining foreign exchange through the exportation of uranium, and the intention of the mines and energy minister perhaps is to adopt that desperate solution.

Cesar Cals' Dream

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 24 Apr 84 p 3

[Editorial article: "Cesar Cals' Nuclear Dream"]

[Text] Brazil is a country of surprises, many of them sad, the product of political ambitions or minor interests. The report that Minister Cesar Cals plans to build a uranium enrichment plant in Ceara in order to utilize the ore deposits discovered there some years ago fits into the list of those surprises, more serious inasmuch as it arises at a time of economic crisis. The minister of mines and energy plans to invest "initially" \$16 million in another nuclear adventure, unjustifiable under any circumstances.

The undertaking is unjustified for several reasons: the country does not need that uranium because the Pocos de Caldas deposits are more than sufficient to take care of the whole Brazilian nuclear program and there is a plan to build an identical plant in Resende; there is no economic prospect of exporting uranium in sufficient quantity to justify large investments, even considering the purchases by France; and more serious still, the uranium deposits in Ceara are poor. In fact, what was found in Ceara was not a large uranium reserve but merely deposits of that ore in the midst of phosphates. The uranium, one might say, is a sort of byproduct. In the beneficiation process, it will first be necessary to extract the phosphate and then separate the uranium ore, and only then can it be enriched.

On that point begins the second chapter of this tragicomic story: the ore found as an impurity of the phosphate has a very low uranium content: only 1 percent when the average for good deposits is on the order of 4 to 5 percent. Let us suppose, however, that that uranium is enriched in the plant which Cesar Cals plans to build in his home state. What system do we have available? Only the Becker process of enrichment by centrifugal jet which is still being tested in Brazil and in the Federal Republic of Germany with debatable results thus far... That is, before we have scientifically and economically confirmed the uranium enrichment process, we are planning to install a plant to produce it, utilizing a low-content residual ore. That picture becomes even more grotesque when we know that there is enough uranium in Pocos de Caldas to fully take care of the demand of the Brazilian nuclear program, even in the original, ambitious form of eight plants, and there is not the least possibility of competition in a highly competitive world market in recession!

The only logical--how strange that word sounds here--explanation is that we plan to produce fertilizers with the phosphate extracted, using the uranium ore as a byproduct. Even so, there is nothing to justify our undertaking at this time of crisis the construction of a costly enrichment plant in Ceara which will utilize an as yet unproved process. It is decidedly going too far; it is wasting funds that we do not have even to complete priority hydroelectric plants or construct the transmission lines essential to prevent future electric energy supply problems.

It is unbelievable that decisions of that nature--which involve not only the expenditure of scarce funds but also the application of complex techniques that in any country are found in the hands of groups of the highest-level specialists--should be placed in the sphere of a single minister, who is not an energy expert although he is the head of the Ministry of Mines and Energy. Basically, the impression that remains is that Cesar Cals is only planning to reward his voters and the governor for the popular support received for him and his family, and to go into history as the founder of the great uranium enrichment project of Ceara.

At this time when the federal government is announcing the complete revision of its investment plans and the reassessment of the nuclear program, the timetables of which are being set back because of its high cost and lack of a market for the thermal energy to be generated, it is simply absurd that this new project should be announced; a project that will utilize poor and unneeded ore, utilizing a process that is still being tested...

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CSO: 5100/2095

PHYSICIST: NUCLEAR ARMS PROGRAM BEING DEVELOPED

PY040357 Sao Paulo FOLHA DE SAO PAULO in Portuguese 1 May 84 p 9

[Excerpt] Last week Professor Rogerio Cezar Cerqueira Leite, of the UNICAMP [Campinas State University] Physics Institute and member of the "FOLHA" editorial board, asserted that the country is developing a parallel nuclear program that has no connection with the program aimed at building nuclear plants to generate power. This parallel program that is being developed at the laboratories of the ITA (Aeronautics Technical Institute in Sal Jose Dos Campos) and the CNEN (National Commission for Nuclear Energy, at its Sao Paulo unit near the university campus), "is aimed at obtaining technical know-how for the production of nuclear arms."

According to the physicist "it is sophistic to say that Brazil is not trying to produce the nuclear bomb," since it is well known that technicians at the ITA are trying to reprocess uranium (the operation consists of separating the plutonium generated from nuclear reactors) and that at the CNEN (a research center that in late 1982 was called the Institute for Nuclear and Energy Research that was "donated" to the federal government by Paulo Maluf [former Sao Paulo state governor]) projects for the construction of nuclear submarines, among others, are underway. This evidence prompts Professor Rogerio Cerqueira Leite to assert, quite rightly, that "it is impossible to state that no attempt to manufacture vehicles is being made when wheels and motors are being produced."

Cerqueira Leite made these daring statements last Tuesday at the end of the exhibition, at the "FOLHA" auditorium, of the documentary "A Minute Before Midnight," that was followed by a debate on the advantages and dangers of nuclear plants. Actress and ecologist Cacilda Lanuza, Sao Paulo University professor; physicist Mario Schemberg; UNICAMP Professor Valdemar Ferreira de Almeida; and author Dagomir Marquesi took part in the debate that was conducted by Cerqueira Leite. The attention of the 120 persons attending the film and those taking part in the debate was focused on the discussions regarding nuclear plants where, by consensus, it was agreed that they represent a real threat to the entire population.

CSO: 5100/2099

BRAZIL

BRIEFS

ANGRA I TECHNICAL PROBLEM--The Angra I nuclear plant is working at half capacity because one of its condenser's two water refrigerating pumps is not working. This information was released yesterday by Licinio Seabra, president of Furnas Electric Power Company, who said that energy will not be generated to 100 percent of capacity, 626 megawatts, until the weekend. The pump, which is U.S.-made, is being repaired in Sao Paulo. [Text] [PY161730 Rio de Janeiro 0 GLOBO in Portuguese 15 May 84 p 18]

CSO: 5100/2103

MEXICO

BRIEFS

LAGUNA VERDE 1985 OPERATION--The Laguna Verde Electronuclear Plant project has not been halted and will provide the population with nuclear-generated electric energy, starting next year. This was assured yesterday by engineer Cesar Garcia, head of the project's design engineering, who spoke about the project to students of Monterrey's School of Technology attending the fourth Electronics and Communications Week. [Excerpt] [Monterrey EL NORTE in Spanish 27 Mar 84 p 11-B]

CSO: 5100/2093

ATOMIC COMMISSION CHAIRMAN COMMENTS ON SOVIET OFFER OF REACTORS

BK071635 Delhi Domestic Service in English 1530 GMT 7 May 84

[Text] Indian scientists have developed a new mixture to be used as nuclear fuel for the fast breeder reactor — FBTR — at Kalpakkam in Tamil Nadu. Announcing this the chairman of the Atomic Energy Commission, Dr Raja Ramanna, told a news conference in New Delhi that with the new mixture the reactor can start functioning by the end of this year. The mixture consists of plutonium, uranium, and carbide. The FBTR is a highly complex reactor, and the countries like France and the Soviet Union use a different mixture to run it. The earlier idea of using French fuel was dropped, as that turned out to be very expensive.

Dr Ramanna said that by the turn of the century atomic power produced in the country will be on the order of 10,000 megawatts, which will be 10 percent of the total electricity produced. If it is found that we may fall short of meeting this target, the reactors offered by the Soviet Union may be bought to fill the gap. He described the Soviet offer as good but said discussions are still going on about it.

Dr Ramanna, who was assisted by a team of colleagues in replying to a barrage of questions from newsmen, expressed his distress at adverse publicity in a section of the press about certain aspects of the nuclear power program. He said scientists of his organization are doing a commendable job and should be encouraged.

Dr Ramanna said the research reactor at Trombay, called

Dhuva, will be commissioned in about 3 months. The second unit of the Madras atomic power station is likely to function in about a year.

The director of the heavy water project, Dr Srinivasan, told the news conference that India is now self-sufficient in heavy water and heavy water technology. Only for the first unit of the Rajasthan power station heavy water has to be imported. He said the Tunicorin heavy water plant is a success story and has been continuously working at 80 percent efficiency for over 3 months.

Dr P.K. Iyenger, director of the Bhabha Atomic Research Center, said technology has been developed to contain waste inside concrete containers (?enclosing) glass cases.

Experiments are going on at Kolar gold mines in Karnataka to explore possible sites for permanent burial of radioactive waste. He said a new atomic reactor has been developed which uses manmade material processed from thorium sand of Kerala coast. The reactor can produce power as long as thorium supply lasts.

Dr M.R. Srinivasan, director of the Atomic Energy Commission power project, said the fault of the first unit of the Rajasthan power plant has been identified and a solution to the leakage found. He expected the plant to be commissioned soon. He also said spare parts of the Tarapur atomic reactor are being developed indigenously.

CSO: 5100/4717

RAO MAKES STATEMENT ON SINO-PAK NUCLEAR COOPERATION

Madras THE HINDU in English 31 Mar 84 p 1

[Article by G.K. Reddy]

[Text] New Delhi, March 30--The External Affairs Minister, Mr P.V. Narasimha Rao told Parliament today that the Government was keeping a constant watch on Pakistan's nuclear programme with the 'utmost vigil' in the wake of the report of Sino-Pak collaboration.

In a statement he made in the Lok Sabha today in response to a calling attention motion on the subject, he said there were many reports "pointing towards possible Chinese collaboration in Pakistan's efforts for developing nuclear weapons."

The Government, he said, could not "brush aside as bluff or take as gospel truth" that Pakistan was on the threshold of acquiring nuclear weapons capability with Chinese assistance. But it had to remain on alert checking and rechecking such report. The vigilance in such matters, he added, had to start with the Indian scientists keeping abreast of relevant developments. But Mr Narasimha Rao declined to disclose, despite persistent queries from members, whether the Government had any independent information about Pakistan's nuclear activity or the reported Chinese collaboration or it was relying only on foreign reports. He, however, referred to the recent claim by the head of the Pakistan's nuclear establishment, Dr A.Q. Khan, that they could produce nuclear weapons, although the report was later denied by the Pakistan Government.

No Chinese denial: The External Affairs Minister referred to the published American reports and the testimony of senior U.S. officials that China had not only supplied nuclear materials other than fuel related items, but also transferred sensitive nuclear weapons design information to Pakistan. He said the U.S. press reports and statements of officials speak for themselves while drawing attention to the fact that there had been no categorical denial from the Chinese side.

In an interview published in August 1982 in a New York journal Nucleonics Week, Mr James Malone, the then Assistant Secretary of State and Chief Nuclear Negotiator of the U.S. administration, had stated that China had apparently supplied to Pakistan material other than fuel-related items,

which he had declined to specify. Mr Howard Shaeffer, Deputy Assistant Secretary of State of the U.S. Government, in a testimony in early 1983 before the Sub-committee on Asian and Pacific Affairs of the House of Representatives had confirmed that there was a nuclear relationship between China and Pakistan. Though details of this relationship were not disclosed, the sub-committee received an intelligence briefing on the subject.

Mr Narasimha Rao said Mr Paul Leventhal, president of the Nuclear Control Institute of Washington had also testified recently that China has transferred sensitive nuclear weapons design information to Pakistan.

Though the Chinese Government had not contradicted these disclosures by U.S. officials and experts, the Chinese Prime Minister, Mr Zhao Ziang, had however made some sort of a general statement during his visit to Washington early this year reaffirming China's commitment to use nuclear energy only for peaceful purposes. He had stated: "We do not engage in nuclear proliferation ourselves, nor do we help other countries develop nuclear weapons."

'Unholy alliance': The Congress (I) member, Mr Ramgopal Reddy, who sponsored the calling attention motion along with four others, urged the Government to take all possible steps to meet a nuclear threat from Pakistan. Another Congress (I) member, Mr Chintaman Jena, spoke of an "unholy Sino-Pak" alliance against India while Mr Ram Vilas Paswan (Janata) took exception to the External Affairs Minister quoting from foreign reports instead of taking Parliament into confidence about the information gathered by the Government on its own intelligence services.

Mr Narasimha Rao said that as India was in the process of improving relations with China and the next round of border talks were due to take place soon, it would not be proper to say anything more on the subject at this delicate stage. A delegation of Indian officials would be going to Beijing shortly to carry forward the dialogue and he felt it would be inappropriate for him to say anything further at this time on the nature or extent of China's reported nuclear collaboration with Pakistan.

CSO: 5100/7075

BARODA HEAVY WATER PLANT TO CLOSE FOR REPAIRS

Bombay THE TIMES OF INDIA in English 11 Apr 84 p 14

[Text] Baroda, April 10--The heavy water plant here will shortly be shut down for major repairs which will include the replacement of coolers, converter-catalysts, high pressure valves and catalyst pumps.

The work which is likely to take more than four months to complete will begin when the new equipment arrives from France by the end of May.

Frequent leakages have hampered the plant's operation ever since it was commissioned in 1975. Even after its recommissioning in July 1979, after remaining closed for two years following a major explosion, the plant's performance has been fitful. In fact, it functioned for only four months in 1982-83, producing a meagre eight tonnes of heavy water against its annual capacity of 67.5 tonnes. In 1981-82, it was closed for six months, including a 20-day lockout because of labour trouble and produced only three tonnes, while in 1980-81 it operated for five months and gave eight tonnes of heavy water.

The performance was slightly better in 1983-84, with an output of 13.7 tonnes, but this year the plant was closed on April 2 when leakages were detected in the steam pipeline of the distillation column and it resumed functioning only today.

While the management claims the poor production is largely caused by labour problems, the INTUC-affiliated employees' union, bhari pani kamdar sangh, points out that most of the operations at the plant are automatic and even if they wanted to, the workers could not affect production.

The sangh opposes the management's dual policy towards employees. Those who joined the plant before December 1972 are considered "regular staff" and receive more benefits than the "industrial staff" comprising those who joined subsequently. It points out that "regular staff" who are promoted, become "industrial staff" and are deprived of medical leave apart from having their privilege leave reduced from 33 to 17 days.

The plant was set up by a French firm, Gelpar. According to the contract signed in 1969 with the government of India, it was estimated to cost Rs 14 crores and be completed within three years. However, it was commissioned only in 1975.

The explosion in 1977 was reportedly an offshoot of some modifications suggested by Gelpar in the converter outlet pipe and it necessitated repairs costing Rs 8 crores.

There are four heavy water plants in India. The other three being at Tuticorin, Taltcher and Kota. The Tuticorin unit has an annual capacity of 70.5 tonnes and the other two of 100 tonnes each. Two more plants are being set up at Thal in Maharashtra and Hajira in Gujarat and another two are proposed to be built at Manuguru in Andhra Pradesh and Broach in Gujarat.

CSO: 5100/7081

POSITION ON PRC ENTRY INTO IAEA DISCUSSED

Bombay THE TIMES OF INDIA in English 5 Apr 84 p 6

[Text] New Delhi, April 4--India's ambassador to Austria, Mr S.K. Singh, has returned to Vienna after long consultations on the question of China's entry into the International Atomic Energy Agency (IAEA) and the consequent need to ensure that India's position as a globally advanced member of the board of governors of the IAEA is in no way adversely affected.

Although he had come primarily because of the visit to India of the Austrian chancellor, Dr Sinowatz, Mr Singh took the opportunity to discuss the IAEA issue. For this purpose he met the Prime Minister, Mrs Indira Gandhi, the external affairs minister, Mr P.V. Narasim Rao, the foreign secretary, Mr M.K. Rasgotra, the principal secretary to the Prime Minister, Dr P.C. Alexander, and the Cabinet secretary, Mr Krishnaswamy Rao Sahib.

India has made it clear that while China's admission to the board of governors of the IAEA is welcome, this should take place without any derogation to the Indian position. Indeed, India would be compelled to consider suspending its association with IAEA in case any arrangement which detracts India's present position is suggested.

Mr Singh will be taking part in the world conference on International centre for genetic engineering and biotechnology which is taking place in Vienna. The Indian delegation to this conference of plenipotentiary is being led by Dr Varadarajan, secretary, department of science and technology.

CSO: 5100/7078

BRIEFS

URANIUM RECOVERY PLANT--The Uranium Corporation of India Limited has commissioned the second uranium recovery plant at Rakha in Bihar to recover small values of uranium present in the copper tailings discarded at the copper concentrator plant of Hindustan Copper Limited. The Corporation is already operating a similar plant at Surda, according to Nuclear India. Various design improvements have been effected in this plant based on experience gained in the operation of the Surda unit. A noteworthy change is the way all the tailings and concentrates from the tables are brought to a centralised place by gravity. This has reduced the requirement of the pumping units resulting in substantial savings. [Text] [Madras THE HINDU in English 4 Apr 84 p 24]

MORE N-POWER PLANTS--Tiruchi, April 1--The 500 MW nuclear power plants are likely to go into stream from 1995. The spadework for this has already started. Dr P.K. Iyengar, Director of the Bhabha Atomic Research Centre has hinted. These would be totally Indian in design. There was a separate committee to identify sites for the plants, he said. In an interview to The Hindu here Dr Iyengar said he met industrialists and public undertaking managements manufacturing power equipment in the country a few days ago to ascertain their capabilities to meet the requirements for the projected 10,000 MW nuclear power generation by 2,000 AD programme. He found all of them keen to build up or augment their infrastructural facilities to rise to the challenge. [Text] [Madras THE HINDU in English 2 Apr 84 p 12]

NUCLEAR DEBRIS FOUND--Scientists of the Physical Research Laboratory, Ahmedabad and the Geological Survey of India have recorded presence of "nuclear debris" in the Changme Khangpu and Zemu glacier of Sikkim, reports UNI. This was recorded during a stable and radioactive isotope studies for dating glacier age on expedition basis. Radiometric studies and chemical analysis of the samples, collected from the Changme Khangpu and Zemu glaciers revealed that this might have been the fallout of a Chinese nuclear explosion around October 1980, according to GSI sources in Calcutta on Wednesday. [Text] [Calcutta THE STATESMAN in English 12 Apr 84 p 13]

URANIUM SMUGGLING SUSPECTED--Patna, April 12--Is uranium being smuggled from the Jadugoda uranium mines in Singhbhum district of Bihar to Pakistan? According to Indian Embassy sources in Kathmandu, Nepal, uranium is being smuggled from the Jadugoda mines via Kathmandu to Pakistan. While details of the clandestine operations are not readily available, the modus operandi

of the gang engaged in the smuggling is to despatch uranium in trucks to Kathmandu from where the stuff is flown to Pakistan by international airliner. The complicity of some mine employees is obvious. The Embassy has apprised the Government of India of the racket and the Union Home Ministry has, in turn, alerted the Bihar Government. [Text] [Madras THE HINDU in English 13 Apr 84 p 1]

CSO: 5100/7080

MINISTER SAYS KANUPP NOT BEING FULLY UTILIZED

Karachi BUSINESS RECORDER in English 8 Apr 84 p 1

[Text] Islamabad, April 7--The Federal Finance Minister Ghulam Ishaq Khan told the Majlis-e-Shura that the Karachi nuclear power plant was not being fully utilised to generate power due to fuel shortage.

In reply to a supplementary question by Mohammad Naeemur Rehman, the Minister said the Canadian Government suspended the supply of uranium and spare parts required to run the plant following the atomic explosion by India in May 1974.

The Pakistan Energy Commission was making the needed spare parts and the plant was now being run by using the indigenous uranium. As the uranium was in limited quantity, search for more uranium in the country was going on.

Earlier, Raja Sikandar Zaman, the Minister for Water and Power, said that reason behind the increase per unit cost of thermal power during 1977-1983 was the increased prices of oil, higher salaries and fringe benefits given to the employees.

He said that per unit cost of hydel power was 3.37 paisas in July 1977 and 4.19 paisas in June 1983. The per unit cost of thermal power was 18.45 paisas in July 1977 and 43.18 paisas in June 1983. The cost of nuclear power per unit was 46.27 paisas in July 1977 and 69.08 paisas in June 1983.

The higher cost of nuclear power was due to the under utilisation of the plant, the Minister added.--APP.

CSO: 5100/4714

SOVIET ASSISTANCE FOR CHASHMA PLANT SOUGHT

Islamabad THE MUSLIM in English 9 Apr 84 p 8

[Excerpt]

ISLAMABAD, April 8: Pakistan has asked the Soviet Union to provide assistance for the installation of a 900 megawatt (WM) nuclear power plant at Chashma near Mianwali.

This was disclosed by Lt. Gen. Saeed Qadir, the Federal Production Minister, while replying to a question during question hour in the Majlis-e-Shoora on behalf of the Federal Finance Minister here this morning.

He said during his visit to the USSR in December last, the Finance Minister held discussions on various projects and explored further avenues of economic co-operation with the USSR.

An agreement for the installation of a power generator in Multan had been finalised with the Soviet Union in this connection while Pakistan's call for assistance for Chashma plant was under the consideration of the USSR, he stated.

Answering another question, the Production Minister on behalf of the Finance Minister said the date for the receipt of the proposals from international bidders for the plant had been extended. Tender documents for the Chashma project, he said, were released to the international bidders in December 1982, but, he added, due to unavoidable delay in the receipt of the proposals from reactor suppliers, the project was now envisaged to be completed by 1991 instead of 1988 as previously scheduled.

CSO: 5100/4714

POLITICAL VIEWPOINTS ON NATIONAL ENERGY PLAN DEBATE

Lisbon O JORNAL in Portuguese 13 Apr 84 pp 24-26

[Text] After this long circuit through the thousand facets of the nuclear option, having heard those responsible for the National Energy Plan (PEN) and the energy policy of our country, and after statements by those who regard the nuclear option as the obvious path and those who see it as the most idiotic and dangerous of illusions, after reference to the major international issues arising in this realm and taking up in the final analysis the diversion of weapons and listing the alternatives regarded as positive and possible today, it appears to us that the moment has come to put an end to the thorny task we undertook to carry out by encouraging public debate of a matter we regarded as excessively private, pointing out the pros and cons of a problem which seemed to us too far removed from common sense due to its excessive envelopment in the technical terms which had to date been favored among us. Here, where many say yes and an equal number of others say no, there remains as a kind of farewell a last vaguely mocking smile: the statement by a university expert in the United States who recalls that electricity and the steam locomotive were also, in their day, regarded as terrible threats to mankind...

Nor did we want, in anticipating the debate in the Assembly of the Republic, to fail to indicate the positions on this issue of the main political parties and of the social partners, either. We listened to the views of those which, like the PPM [Popular Monarchist Party], have maintained opposition which is now historical to nuclear energy, and the groups of ecologists who early on made this battle their main militant cause. Two large gaps are to be regretted in this assumption of positions: despite our insistence over a period of several weeks, the PSD [Social Democratic Party] and the CDS [Social Democratic Center Party] did not want to give us any statement.

Socialist Party Favors "Possible Electronuclear Production"

If the people and the scientists were to voice their common and enlightened support in this connection, the PS [Socialist Party] would support the adoption of a program of electrical energy production at nuclear plants in Portugal. The position of this party is the following:

"Energy problems have been the subject of profound analysis and discussion by the PS.

"Both the document 'Ten Years To Change Portugal--A Proposal for the 1980s,' which was approved at the Third Congress in 1979, and the document entitled 'The PS Response to a Portugal in Crisis,' the 1983 program manifesto, dealt with the development of the energy policy.

"The PS believes that the Assembly of the Republic should proceed to approve the National Energy Plan, while the government should review the studies made. Where the nuclear option is concerned--in the event that it comes to be regarded as the integrating alternative among domestic energy sources--it should always be contingent upon the evidence and results tested through broad public education and discussion.

"If the nuclear option comes to be one of the energy components in the above-mentioned plan, it should be analyzed from all perspectives, specifically involving economics, the protection and safety of the population and environmental impact, and even as a function of technological dependence.

"Revealing an attitude of openness toward the solutions regarded as best suited to and capable of resolving the domestic energy problem, the PS, in its document entitled 'The PS Response to a Portugal in Crisis,' indicated its approval of the 'use of uranium for possible electronuclear production,' without prejudice to the weighing of the factors already mentioned in the final decision, whatever it may be."

PCP Criticizes Energy Plan

"The position of the PCP [Portuguese Communist Party] on the energy policy needed by the country and an analysis of this sector in depth were made public at the end of 1977, within the context of preparations for and the holding of the National Conference of the PCP on Economic Recovery. This analysis will be resumed very shortly with the holding of a seminar devoted exclusively to the energy problem by the PCP.

"It should be noted further that in recent days, positions very close to that PCP have been publicly adopted by leaders in the most widely varied political-ideological fields, thus confirming the accuracy and realism of the position adopted and defended by the PCP even earlier.

"From 1977 to the present, the energy situation of the country has been deteriorating steadily, along with the economic policy of the right wing. This would not have happened had the measures proposed by the PCP in 1977 been implemented, both in the realm of overall economic policy and that of the energy policy. Specifically, and beyond the measures of a general nature, there were concrete recommendations for energy saving and conservation and the replacement of energy raw materials, as well as those with a view to better use of the domestic energy resources.

"However, after only 5 years, the so-called National Energy Plan emerged, obviously drafted to justify the nuclear option. Notable within it in particular is the minimizing of the use of hydroelectric resources, whereas in the view of the PCP, it is essential to advance speedily in the full use

of the hydroelectric potential of the country (less than half of which is being utilized today).

"The so-called program for the introduction of nuclear energy is in fact the broadest measure in the electrical subsector and the PEN itself. This is the reason for the emphasis placed on it recently by the media. For some "pro-nuclear" pressure groups with direct or indirect links with powerful nuclear monopolies, the PEN has come to be used as a basis for the nuclear option at any and all costs. This is the case with the leading PS group currently in power, wherein Minister of Industry and Energy Jose Veiga Simao stands out. His recent statements about the nuclear option are rather worrisome, and lead to questions as to whether a free and clear decision has been adopted on the matter. The incident reported by O JORNAL on 24 February 1984 concerning a report making a comparison of the nuclear-coal option showed the very low level to which its advocates had sunk in an effort to impose an option determined in advance.

"The PCP opposes the nuclear option of the PEN for a vast complex of reasons, specifically:

--the rapid obsolescence of the type of plants planned within the PEN, because of the technological development of the uses of nuclear energy for peaceful purposes, while exhausting our uranium resources in a short period of 15 to 20 years;

--the tremendous expenditure in foreign exchange at a time when the foreign debt is extremely high;

--the noncompetitive price of electrical energy of nuclear origin in Portugal, in comparison to that produced in hydroelectric plants and thermoelectric plants burning coal;

--the limited participation by domestic industry in absolute terms, and in comparison with that in conventional hydroelectric and thermic power plants; and

--the very limited transfer of technology, with negative effects on the price of energy, the safety of people and property and the environment.

"The PCP asserts that there is an alternative to nuclear plants for the satisfaction of electrical energy needs up to the year 2000, beyond which it is illusory to make any predictions at this time. A program of expansion for the hydroelectric plants, adequately supplemented by a conventional thermic power plant program, would suffice to guarantee coverage of these consumption needs. In the current stage of our technological development, the nuclear option at any and all costs is inconsistent with the search for minimal energy costs, fails to diversify energy forms at an efficient level, and does not increase the safety of the country's energy supply.

"In brief, the PEN's nuclear option may serve the interests of pressure groups (domestic and foreign), but it would be a real disaster for the national economy."

PPM Claims "Blackmail"

"If, throughout the term of the AD [Democratic Alliance] government, no proposal to introduce nuclear energy was approved, this was due to the 'blackmail' to which we were always subject: if you proceed with this we will immediately withdraw from the coalition, letting the government fall and forcing the holding of new elections."

Luis Coimbra, leader of the PPM, was explaining the complications of this early opposition.

In his view, it is most of all important to bear in mind that the drafting of grandiose (and costly) power plant proposals is an activity of interest to more than one group, since "on the proposal itself, percentages are paid on the total estimated cost, and this even when matters never go forward later. Moreover, this is a very profitable activity, and the more the investment is, the better for the planner."

Other interests formed a constant parade behind the conical tower, including those involved in the mysterious disappearance, between the Secretariat of State for the Environment and the Council of Ministers, in the distant days of the provisional governments, of a Ribeiro Telles proposal for an impact study on the building of a plant in Portugal. Or, later on, under a government which was no longer provisional but about to fall, with the untimely visit of "the secretary of state for energy to the parliamentary group on environmental issues, asking us to please approve the proposal for the construction of a nuclear plant promptly."

As to the information and responsibility of the incumbents in this chessboard of decisive positions, he said, "each time I recall hearing a secretary of state say that there had been no problems with the Spanish plants, because the lagoons prevented the passage of radioactivity."

There are many reasons for the opposition of the nuclear movement which has always characterized the PPM, ranging from the rejection of the model of society, which is centralized and policed, and thus established, to criticisms of the economic profitability of this measure, in addition to the insecurity never before felt in Portugal, concerning a threat hovering permanently over the heads of everyone. The alternative investment to be made would involve a large coal-burning plant and the exhaustive exploitation of our water resources, in addition to the inevitable energy conservation effort.

"It must not be forgotten that the entire universe of electronics and robotics, without a doubt the third great industrial revolution after those involving coal and oil, brings with it a fuel requirement much lower than the levels traditional to date. And it is in this direction that investment must be made, and that is the direction in which things are moving. Or is it not true that our splendid color television sets consume only a fifth as much electricity as the black and white sets of our grandparents?"

Friends of the Earth Take Ecological Approach

The largest and best-organized Portuguese association concerned with ecology is called the Friends of the Earth and has its headquarters in Lisbon, from which it has constantly reiterated its antinuclear position. Recalling that "a representative of the Friends of the Earth was invited to the office of the secretary of state for energy in December to serve as a member of the PEN advisory and support group, and, like the public discussion, this group ceased to exist," the organization comments:

"The PEN was supposed to be a working document on energy policy. We note that increasingly it is the political energy support for some ministers. Officials under its jurisdiction continue to tour the country. 'Strange' cases are multiplying. It is reported that the Council of Ministers will adopt a position. Today it is clear that any decision is a political and irresponsible one."

And it adds:

"Dr Mario Soares made some promises to us during the electoral campaign. He promised that the ecologists would have access to newspapers and television. He promised support of our movement and a clear policy. Access to the media for ecologists continues to be the same, the subsidies granted to us were taken away again, and the clear policy was only advanced for the greedy purposes of some individuals.

"The debate on the PEN was another promise. The prime minister agreed, when we spoke to him in November, that it had not yet begun. We continue to wait for it to begin.

"The ecologists have proposals and alternatives to put up against energy centralism-totalitarianism. There are social, economic and political alternatives which we propose and conceive of in our actions. We are counting on the new values of international solidarity, on the gradual domestication of the economy, and another division of labor such as to put an end to the isolation to which this society condemns us.

"We do not propose models, but rather action for the protection of life, nature and our past in the future.

"Ecologists are politically opposed to the nuclear option because this is the centralizing Thanatos, the perfect Tower of Babel. It is the alter ego of a system which is impotent and incapable of assessing its crisis, and which as an alternative proposes to us centralization, intensified social control, reduced autonomy and the destruction of human diversity. Or wars in the name of nothing and benefitting nothing. We all know that the perfect Tower of Babel is the most complete utopia, and the most atrocious totalitarianism.

"The criticisms we were the first to make are the environmental ones: the release of radon during the mining of uranium, the leaks during the fission or cooling processes (Harrisburg or Almaraz), the indestructible residues,

even enriched in the bomb. There were also the economic criticisms: for lack of money, nuclear programs come to a halt, enterprises are on the brink of disaster, there has not been a single power plant ordered in the United States since 1978, the World Bank itself, in a report the circulation of which the MI [Ministry of Industry] prevented advised against it (corruption, and so on). These criticisms are shared by intellectuals, politicians, sovereign leaders, scientists, university professors and poets throughout the world (a wall of silence surrounds Kystin).

"We, dear readers, branded as delirious, naive and disorganized romantics with flowers in our hair and sandals on our feet--we have other criticisms of the nuclear option.

"In the name of democracy on a daily basis and the capacity to live, choosing technology and freeing information, producing usefully and consuming better, in the name of the life we want to regain, in the name of love and, who knows, kindness..."

"We say to the soulless politicians, in the name of the living stones and the real country: no to the nuclear option, because we say yes to the difference, is not up to the authorities."

Green Party Predicts Higher Costs

Deputy Antonio Gonzales, an independent member on the APU [United People Alliance] slate, speaks for the "Green Party"--the Portuguese Ecology Movement.

"I would like to begin this small statement on the position of 'the Greens' on nuclear plants by focusing on the 'security' they provide. An indication of it is the flat refusal of the insurance companies to cover these installations and the surrounding population, who are candidates to become victims in the event of an accident caused by damage, a natural or any other catastrophe.

"The losses, which would come to giant totals with incalculable human cost, would also affect the plant installations, rendering them useless, if not for good, for at least many years or months, as has already happened in a number of countries, representing not only an ecological disaster, but also an economic reverse, because of the very high cost of such installations. And in terms of breakdowns, it is not even necessary to think of earthquakes, lightning strikes, meteors, floods, airplane crashes, sabotage, etc., since they will come to a halt of themselves due to breakdowns caused by damage to the materials, since the maximization of the profits of the enterprises which sell them dictate that the safety margins not be 'exaggerated.' In addition, the construction of plants is accelerated before all of the technical problems have been resolved with regard to their operation, the environmental impact (radioactivity and thermic disturbances of river waters used for cooling the reactors) and the radioactive fallout they produce.

"Therefore we reverse our agreement, for ecological and economic reasons, because these plants will be more costly and will lose more time, thus

providing a lower yield, for which the consumer will pay, and further the state will have to take responsibility for the deficits of the EDP [Portuguese Electric Company], while seeking to compensate for this burden by increasing taxes, because it is always the same people who pay and those who profit are those who make the deal and get out in time!

"Our rejection is also based on our choice of other alternatives--water, solar, wind, biomass and other sources of energy, as well as combinations thereof.

"We agree to plants burning coal, fuel and diesel oil, etc., in a transitional stage until they can be equipped with the maximum of antipollution mechanisms, which we admit will, despite everything, be inadequate.

"If we opt for the nuclear solution today, given the prices involved, which are too high for our economic capacity, it will be necessary to postpone for a considerable period of time the possibility of significant investments in other options better suited to a developed country, in a more rational and balanced fashion, and in which the present imbalances, bad management and waste would be eliminated. We can thus simultaneously summarize the proposal for the development of Portugal urged by 'The Green Party.' We further point to the technological (and political!) dependence in connection with the enrichment abroad of the uranium we would use, apart from its high cost.

"This position we have maintained has always been the same from our statement to the press in the Edward VII Park until today. For example, both during the presentation of the government program in the Assembly of the Republic, during the formal questioning on it, and now during the discussion of the OGE and the GOP, our opposition to the nuclear option and support of alternative energy sources have been clear. And we would like to point to our protest visit to the Azores in September at the time of the scheduled date for the dumping of nuclear waste in the Atlantic trench off the Azores, when we served as the spokesman for the solidarity expressed by Spanish and Portuguese ecology groups to the regional government of that archipelago because of its firm position in opposition to this practice."

CAL Points to Foreign Interests

In the view of the Lisbon Antinuclear Committee (CAL), which was established even before the Friends of the Earth, specifically to engage in militant action against nuclear programs, the establishment of these plants in Portugal "represents merely the imposition of foreign interests, because orders for new plants have been suspended in the majority of the industrialized countries." This group asks, then, if the nuclear option would be "not just a technical decision, but a political decision as well."

Conservation Is "Living Earth" Alternative

Early and frontline opponents of the building of the Sayago nuclear plant within the boundaries of Spain but just opposite Miranda do Douro, the Oporto activists in the Living Earth group were also the first to organize anti-nuclear rallies in the northeastern region. Making a statement on the PEN,

they criticize the way in which "the so-called public discussion" has been conducted, because "it is limited to half a dozen experts." And they add:

"As an ecology group, we set ourselves clearly apart from the social model implicit in the PEN. Our model for development urges a decentralization of society, the linking of life and work, reliance on the values of the individual and not alienating and passive consumption values, just as we set ourselves apart from the idea that well-being is automatically linked with economic growth, and that with an increase in energy consumption. We propose a society which will produce durable goods making use of the labor factor at the expense of the capital factor, and putting an end to the waste which the maintenance of a military apparatus represents."

Asserting its "firm opposition" to the nuclear option, against which it cites all of the arguments previously referred to in other parts of this survey, Living Earth further states that "the true alternative source of energy is energy conservation."

CGTP Sees PEN as "Ultranuclearist"

From the viewpoint of the CGTP [General Federation of Portuguese Workers]-Intersindical, which is represented in the advisory and support group for the PEN, that program is "dominated by ultranuclearists," i.e., "a group affiliated with the World Bank," and, concomitantly, "the powerful international monopolies which produce power plants."

"We are justified in wondering about the motivations underlying the current accelerated race for the nuclear option on the part of a government which defends the dismissals and the reduction in investments, production and consumption which contribute to the economic recession," says National Council member Rosa Marques. "A government which keeps all of the major national projects at a standstill, which underutilizes the most valuable national resources, and has proved incapable of getting a coal-burning thermal power station, already completed, in operation for lack of coal--what does such a government intend by trying to push the country into such an investment?"

And further:

"In the situation in which we find ourselves, with the complete absence of medium- and long-range economic plans, defended by the present government, how can one speak of planning in the energy sector, which is at the same time such a determining factor in the general economic development and to such an extent determined by it? The promotion of the PEN by this government, always so ready to base its decisions not on planning criteria and the defense of the national interests, but rather the dictates of the IMF, the World Bank and the EEC, leads us to believe that it is a question of abusive and fraudulent use of the valid work done by a large number of highly skilled technicians, just as the PEN serves simply to justify choices made long since, in particular the nuclear option."

The CGTP goes on to point to all of the obstacles which stand in the way of the successful pursuit of any nuclear project, in particular the fact that

"the adoption of plants urged by the PEN would mean exhausting the national uranium resources in only 15 or 20 years," while the "lack of trained Portuguese technicians in sufficient numbers for a nuclear program represents a risk from the point of view of security, the environment and plant functioning."

She went on to stress the following:

"What interests could lead the minister of industry to defend such a program so bitterly, while placing a freeze on the expansion of National Metallurgy, abandoning the PSN, pursuing an intensive campaign against the public enterprises and accusing them of ill-advised investments?

"What can be said, above all, about the paralysis for several years now of the Alqueva hydroelectric plant project and the Guadiana plant, with important effects for the farm sector, despite unchallenged priority? And what of a government which has completed the construction of a coal-burning plant in Sines but cannot run it, because it does not yet know how to transport and unload the indispensable coal? And note that this situation has disastrous effects not only on the energy sector, but on the national merchant marine, the shipyards, ports, etc. as well.

"In conclusion, we believe that independent of the full use of our hydroelectric resources which is urgently needed, there is an alternative to the nuclear option. This alternative involves the coal-burning thermoelectric plant, which for many reasons seems the most advisable. We are not opposed to the production of energy by nuclear means, but their use in our country in the future should serve to support and supplement integrated economic development, which we defend and for which we are fighting, rather than to compromise it hopelessly, which will happen if this adoption is adopted today."

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